s18: EXP LOG (QUIZ v319)
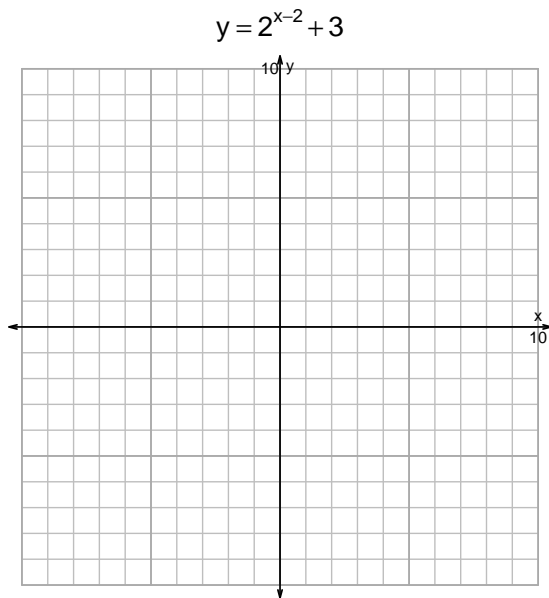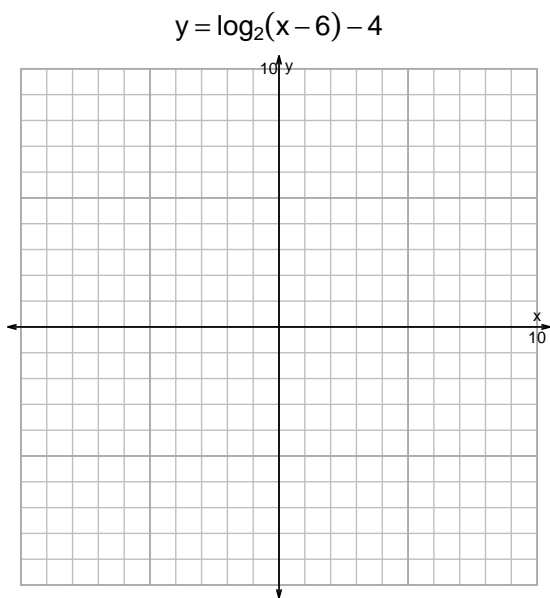
1. (10 pts) Graph $y = \log_2(x - 6) - 4$ and $y = 2^{x-2} + 3$ on the grids below. Also, draw any asymptotes with dashed lines.
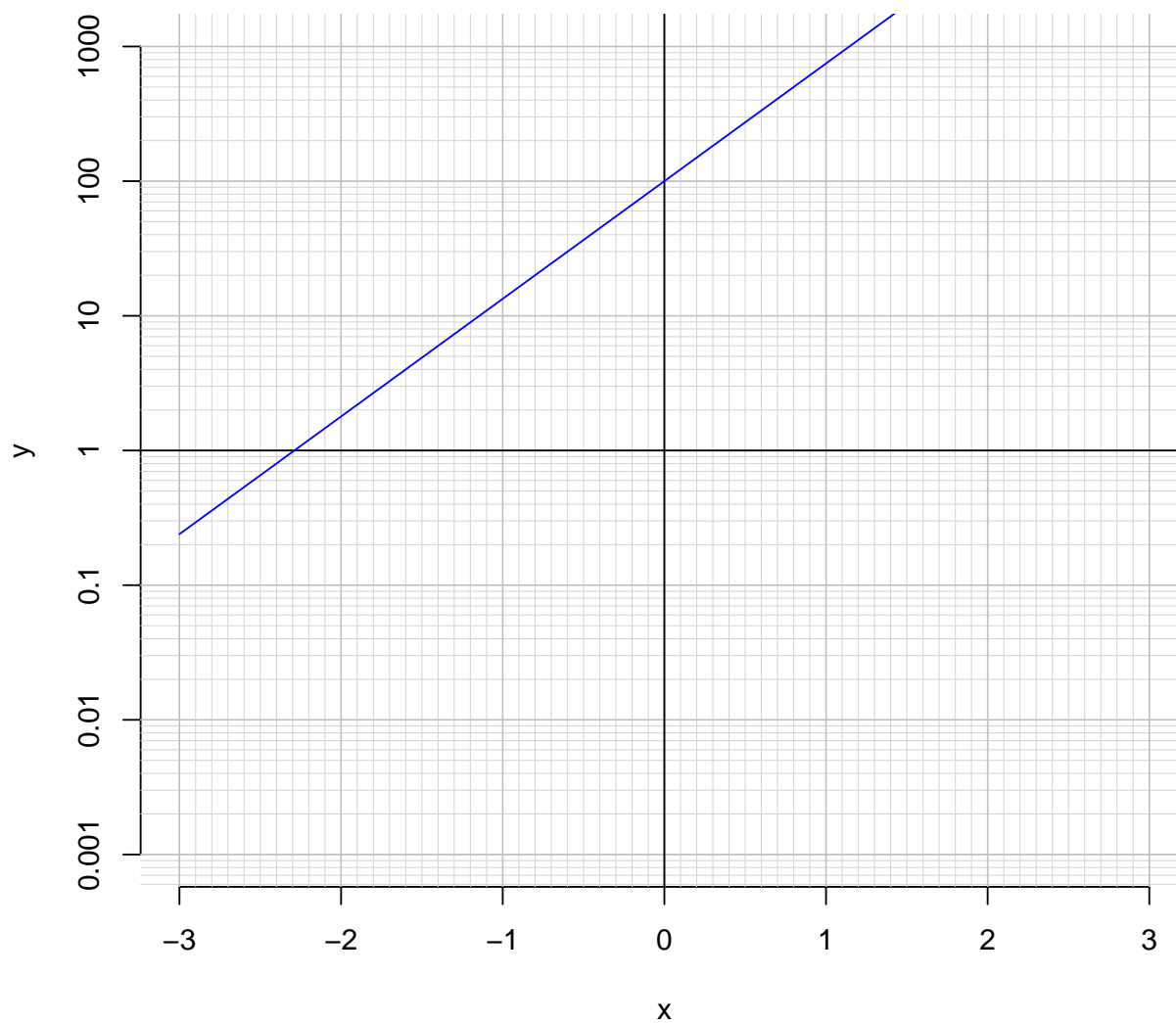
$$y = \log_2(x - 6) - 4$$

$$y = 2^{x-2} + 3$$

Somewhat useful hint: $2^3 = 8$*, and thus* $\log_2(8) = 3$*.*

2. (10 pts) Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression. Please do not do any arithmetic; just move numbers around.

$$-29 = \left(\frac{-4}{7}\right) \cdot 2^{-5t/3}$$

3. (10 pts) An exponential function $f(x) = 100 \cdot e^{2.01x}$ is graphed below on a semi-log plot.

a. Using the plot above, evaluate $f(-2.4)$.

b. The inverse function is logarithmic.

$$f^{-1}(x) = \frac{1}{2.01} \cdot \ln\left(\frac{x}{100}\right)$$

Using the plot above, evaluate $f^{-1}(4)$.